

**REMARKS**

The above amendments to the above-captioned application together with the following remarks are being submitted as a full and complete response to the Office Action dated May 24, 2007. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

**Status of the Claims**

As outlined above, claims 1-20 stand for consideration in this application, wherein claims 1-16 are being amended. In addition, new claims 17-20 are hereby submitted for consideration.

All amendments to the application are fully supported therein, including page 15, lines 5-15 of the specification and Fig. 1. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

**Interview Summary**

The telephone interview was conducted with Examiners Latanya Bibbins and Wayne Young on August 24, 2007. During the interview, no agreement was reached regarding the distinctiveness of the claimed features over the cited prior art under 35 U.S.C. §103(a). The Examiner also pointed out that the amended claims may raise issues under U.S.C. 112, second paragraph.

**The First 35 U.S.C. §103(a) rejection**

Claims 1-6 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Lee et al (U.S. Pub. No. 2004/004921 A1) in view of Kobayashi et al. (U.S. Pat. No. 5,828,639). This rejection is respectfully traversed for the reasons set forth below.

**Claim 1**

Claim 1 as amended recites a disk-shaped information recording medium on which information is recorded or from which recorded information is produced by irradiating with an energy beam moving on/along a track relative to said medium, wherein a first location and a second location are located at different locations in a radial direction of the medium, data concerning a maximum linear velocity ( $V_{1\max}$ ) and a minimum linear velocity ( $V_{1\min}$ ) at said first location and a maximum linear velocity ( $V_{2\max}$ ) and a minimum linear velocity

(V2min) at said second location are recorded at a predetermined location on said medium, and the first location and the second location are set to a pair of edge portions of an area in which a predetermined control mode of the disk-shaped information recording medium can be performed.

Generally, data regarding a predetermined control mode including, but not limited to, a kind of a control method and/or a recording condition such as a recording power, a recording pulse, and a relative moving speed of an energy beam is recorded on a disk-shaped information recording medium. In order to obtain a high quality of recording/reproducing performance, the predetermined control mode should be realized when information is recorded or reproduced in/from the recording area of disk-shaped information recording medium. To do this, a linear velocity should not be higher than the maximum linear velocities and lower than the minimum linear velocities in a recording area to perform. In the disk shaped information recording medium as recited in claim 1, a first location and a second location are set to a pair of edge portions of an area in which a predetermined control mode of the disk-shaped information recording medium can be realized. Therefore, the recording medium as recited in claim 1 allows the recording in a desired recording condition within a predetermined range, which can be determined by a media manufacturer. Consequently, stability of the recording/reproducing quality is improved. Also, interchangeability of a recording medium among a plurality of the recording/reproducing apparatuses is improved (page 16, line 20 – page 17, line 1 of the specification).

In contrast, Lee merely shows that the maximum writing speed and the minimum writing speed, or compatible writing speeds of a disk are recorded in a recordable region to enable the disk drive to record data on the disc which cannot achieve its prescribed recording speed due to manufacturing conditions at an optimal speed (page 4, paragraph [0061]). Lee fails to show that a first location and a second location are located at different locations on the medium and data concerning a maximum linear velocity (V1max) and a minimum linear velocity (V1min) at the first location and a maximum linear velocity (V2max) and a minimum linear velocity (V2min) at the second location are recorded at a predetermined location on the medium. Lee also fails to show the first location and the second location are set to a pair of edge portions of an area in which a predetermined control mode of the disk-shaped information recording medium can be performed.

The secondary reference of Kobayashi merely shows the maximum linear velocity and the minimum linear velocity in each of the zones (Fig. 19). In Kobayashi, each zone into

which a recording region is divided corresponds to each of the data units comprising recording units or playback units (Abstract, col. 2, lines 33-39). The location of each zone is determined according to corresponding data unit, not according to a predetermined control mode of the disk-shaped information recording medium as recited in claim 1. Kobayashi merely shows controlling the rotation of the disc in such a manner as to be of a fixed angular velocity within the bands (col. 2, line 66 - col. 3, line 1). However, Kobayashi does not show or suggest setting two locations to a pair of edge portions of an area in which a predetermined control mode of the recording medium can be performed.

Furthermore, Kobayashi merely shows that a track number of a track in each zone is recorded on the disk, and the data including the maximum speed and the minimum speed of the track is read from the table stored in a ROM referring to the track number. Kobayashi does not show or suggest recording the data including the maximum speed and the minimum speed of the track are recorded on the disk.

In sum, the combination of Lee and Kobayashi would not and could not embody all the features of the invention as recited in claim 1. Also, neither Lee nor Kobayashi addresses the setting of two locations to a pair of edge portions of an area in which a predetermined control mode of the recording medium can be realized. Therefore, there should be no reason to combine or modify Lee and Kobayashi to embody all the features of the invention as recited in claim 1. Accordingly, claim 1 is not obvious in view of all the prior art cited.

#### Claims 2-6

As to dependent claims 2-6, the arguments set forth above with respect to independent claim 1 are equally applicable here. The corresponding base claim being allowable, claims 2-6 must also be allowable.

#### The Second 35 U.S.C. §103(a) rejection

Claims 7, 8, 15, and 16 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Lee in view of Akahira et al. (U.S. Pat. No. 5,729,513). This rejection is respectfully traversed for the reasons set forth below.

#### Claims 7, 15, 16

Claims 7, 15 and 16 have the substantially same features as those of claim 1, at least with respect to a first location and a second location are located at different locations on said

medium, data concerning a maximum linear velocity ( $V_{1\max}$ ) and a minimum linear velocity ( $V_{1\min}$ ) at said first location and a maximum linear velocity ( $V_{2\max}$ ) and a minimum linear velocity ( $V_{2\min}$ ) at said second location are recorded at a predetermined location on said medium and the first location and the second location being set to a pair of edge portion of an area in which a predetermined control mode of the disk-shaped information recording medium can be performed. As such, the arguments set forth above regarding Lee are equally applicable here.

Furthermore, claim 7 recites controlling relative moving speed of said energy beam such that the linear velocity at said first location lies between the maximum linear velocity ( $V_{1\max}$ ) and said minimum linear velocity ( $V_{1\min}$ ), and controlling the relative moving speed of the energy beam such that the linear velocity at the second location lies between said maximum linear velocity ( $V_{1\max}$ ) and said minimum linear velocity ( $V_{2\min}$ ). Claims 15-16 recite reproducing the information recorded on said medium by controlling a relative speed between the medium and the energy beam on the basis of the data concerning a maximum linear velocity ( $V_{1\max}$ ) and a minimum linear velocity ( $V_{1\min}$ ) at a first location on the medium and a maximum linear velocity ( $V_{2\max}$ ) and a minimum linear velocity ( $V_{2\min}$ ) at a second location on said medium. In contrast, Lee says nothing about controlling the relative moving speed of the energy beam based on the information of the maximum velocities and the minimum velocities at two locations.

The secondary reference of Akahira shows the relationship among the radial position of the recording/reproducing track on the disk, the rotational velocity of the disk, and the linear velocity of the disk (Fig. 4, col. 6, lines 61-65). Akahira shows that during recording, a disk is driven at a rotational velocity whereby the angular velocity is constant in any zone but decreases as the radial position of the zone approaches the outer while during reproducing, the disk is driven at a rotational velocity whereby the angular velocity is constant in all zone (Abstract). However, Akahira does not show or suggest controlling the relative moving speed of the energy beam on the basis of the data concerning a maximum linear velocity ( $V_{1\max}$ ) and a minimum linear velocity ( $V_{1\min}$ ) at a first location on the medium and a maximum linear velocity ( $V_{2\max}$ ) and a minimum linear velocity ( $V_{2\min}$ ) at a second location on said medium. As such, Akahira fails to provide any disclosure, teaching or suggestion that makes up for the deficiencies in Lee.

Accordingly, claims 7, 15 and 16 are not obvious over the prior art cited.

### Claim 8

As to dependent claim 8, the arguments set forth above with respect to independent claim 7 are equally applicable here. The corresponding base claim being allowable, claim 8 must also be allowable.

### The Third 35 U.S.C. §103(a) rejection

Claims 9 and 12 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Lee and Akahira as applied to claims 7 and 8, and further in view of Sato (U.S. Pub. No. 2002/0064110 A1). This rejection is respectfully traversed for the reasons set forth below.

As to dependent claims 9 and 12, the arguments set forth above with respect to independent claim 7 are equally applicable here. The secondary reference of Sato merely shows an optical power calibration to determine an optimum recording power. Sato, however, fails to provide any disclosure, teaching or suggestion that make up for the deficiencies in the combination of Lee and Akahira. As such, claims 9 and 12 are not obvious over the prior art cited.

### The Fourth 35 U.S.C. §103(a) rejection

Claims 10 and 13 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Lee and Akahira as applied to claim 7, and further in view of Chen (U.S. Pub. No. 2003/0123352 A1). This rejection is respectfully traversed for the reasons set forth below.

As to dependent claims 10 and 13, the arguments set forth above with respect to independent claim 7 are equally applicable here. The secondary reference of Chen merely shows obtaining two reference linear velocities at an inner radius and an outer radius by an optimum power control. Chen, however, fails to provide any disclosure, teaching or suggestion that make up for the deficiencies in the combination of Lee and Akahira. As such, claims 10 and 13 are not obvious over the prior art cited.

### The Fifth 35 U.S.C. §103(a) rejection

Claim 11 was rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Lee and Akahira as applied to claim 7, and further in view of Mizuno et al. (U.S. Pat. No. 6,996,052). This rejection is respectfully traversed for the reasons set forth below.

As to dependent claim 11, the arguments set forth above with respect to independent claim 7 are equally applicable here. The secondary reference of Mizuno merely shows recording short marks at a high speed. Mizuno, however, fails to provide any disclosure, teaching or suggestion that make up for the deficiencies in the combination of Lee and Akahira. As such, claim 11 is not obvious over the prior art cited.

The Sixth 35 U.S.C. §103(a) rejection

Claim 14 was rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Lee and Akahira as applied to claim 7, and further in view of Morishima (U.S. Pub. No. 2003/0002409 A1). These rejections are respectfully traversed for the reasons set forth below.

As to dependent claim 14, the arguments set forth above with respect to independent claim 7 are equally applicable here. The secondary reference of Morishima merely shows obtaining an optimum record velocity from optimum power control of plural speeds while the optimum record velocity is changed. Morishima, however, fails to provide any disclosure, teaching or suggestion that makes up for the deficiencies in the combination of Lee and Akahira. As such, claim 14 is not obvious over the prior art cited.

Conclusion

In view of all the above, Applicants respectfully submit that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

In light of the Amendments and Remarks, Applicants respectfully request early and favorable action with regard to the present application, and a Notice of Allowance for all pending claims is earnestly solicited.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to

contact the Applicants' undersigned representative at the address and telephone number indicated below.

Respectfully submitted,

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